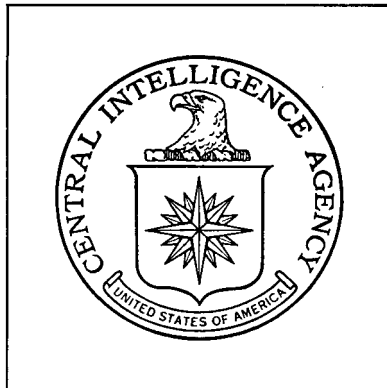


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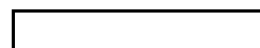
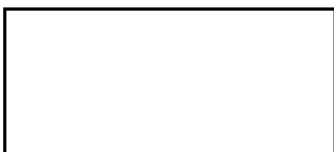
**DIRECTORATE OF
INTELLIGENCE**

**Declass Review by
NIMA/DOD**

**Imagery Analysis Service
Accomplishments During
Calendar Year 1970**

File: Liaison: 3

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DECEMBER 1970

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IMAGERY ANALYSIS SERVICE ACCOMPLISHMENTS
DURING CALENDAR YEAR 1970

PREFACE

This paper, summarizing the major accomplishments of the CIA Imagery Analysis Service during CY 1970, is a part of the IAS Program Submission for the FY 1973-1977 period. It is meant for use in conjunction with the current IAS Five-Year Plan [] also submitted in December 1970.

IAS efforts and accomplishments fall in the DDI Program Category--Information Processing and Exploitation, Subcategory--Imagery Exploitation. All are considered to be in the Program Element--Imagery Analysis with the exception of items related to Management Support, the only other Program Element specified for IAS.

Progress in Organization and Method

IAS Management redefined its objectives during 1970, and this resulted in the identification of the following major production-related tasks: Detailed Imagery Analysis, Current Intelligence Support, Clandestine Activities Support, Basic Reporting, and Imagery Assimilation. These are defined and described in detail in our current Five-Year Plan.

In July 1970, this organization established its own historical file and determined the primary documents which are to be deposited in this file on a regular basis. More recently, plans have been made to safeguard and record other materials of potential significance for the IAS Historical File as they develop.

Progress in Recruitment and Training



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IAS training for the year totaled 24,000 man-hours or 7 percent of the total time expended. The greatest share of this time is expended in training new imagery analysts at the Strategic Air Command's 12-week P.I. course at Offutt Air Force Base, Nebraska. Twenty imagery analysts attended this course during 1970, as a part of our continuing policy of training new professionals in the fundamentals of photointerpretation.

During the year, IAS management reviewed in-house training programs for imagery analysts and formulated a policy in July (IAS Instruction No. 20-10) setting forth for both analysts and supervisors the goals of imagery analyst training programs in IAS and the responsibilities for implementing the programs. Our policy is aimed at developing a consistent training program with adequate opportunities for all imagery analysts.



As part of our professional development program, IAS contracted for an effective writing course for 39 imagery analysts and supervisors in late 1970. The course, consisting of eight two-hour sessions in IAS, was found to be very beneficial and will be repeated for about 65 analysts in early 1971.

Progress in Substantive Output

IAS produced 1,127 substantive reports during 1970, including 958 memoranda (IOM's and IAM's) distributed selectively and mainly within CIA (an average of 5 copies); 94 published reports (mainly basic reporting) disseminated community-wide (125-150 copies); 41 cables; and 34 issues of "IAS Notes." As in previous years, the reports, briefings, and illustrations produced by IAS were contributed largely for incorporation with intelligence from other sources into the finished intelligence issuances of CIA, especially the Intelligence Reports and Memoranda prepared by the production offices.

We continue to utilize a variety of reporting formats--Imagery Analysis Memoranda (IAM's), Imagery Analysis Reports (IAR's), interoffice memoranda (IOM's) and Imagery Research Aids (IRA's)--selected according to subject matter and the number and level of users identified.

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Detailed Imagery Analysis. IAS regards detailed imagery analysis support to the production offices as our most important task. During 1970 we continued to emphasize quality and timeliness in responding to requirements, and our analytical efforts were quite productive in many substantive and geographic areas. Following are a few highlights of intelligence significance:

1. A comprehensive study by IAS in June 1970 showed that activities seen at operational SS-9 ICBM sites were probably associated with a program of periodic maintenance, servicing, and checkout of major system components rather than signifying retrofit of major system components as suggested to GMAIC by DIA. IAS was asked to make a thorough examination of all completed SS-9 groups since the first of these became operational in 1966. This examination, involving several thousand images or "target looks," was successfully completed within about a three-week period.

2. In response to an OSR request and in support of SALT, IAS provided a judgment paper on the ability of imagery analysts to detect either the upgrading of Soviet MR/IRBM's to ICBM's or the deployment of mobile ICBM's on satellite photography. This paper provided confidence levels for measurement and detection of such activity. It also expressed the difficulties and limitations that would be encountered in this type of verification.

3. During the year, IAS identified four large Soviet plants which it believes are designed to produce liquid hydrogen. They include completed plants at Dneprodzerzhinsk, Chirchik, and two plants under construction at Navoi and Tolyatti. These discoveries raise to seven the number of confirmed and probable liquid hydrogen plants identified to date in the USSR. IAS studies also have shown that the long cryogenic-type rail cars observed at Launch Complex J, Tyuratam, are designed to transport liquid hydrogen.

4. IAS produced an Imagery Analysis Report in August on the origin and details of the H-III submarine at Severodvinsk, USSR. This report provided valuable detailed information on the conversion of this submarine which is believed to be the seaborne test platform for the newest, longest-range, naval ballistic missile, the SS-NX-8.

5. Our extensive effort to monitor North Vietnamese logistics including road, rail, and water traffic as well as pipeline construction continued throughout the year. A senior supervisor from IAS participated

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on a DCI team which visited Thailand and Laos to resolve reporting problems concerning the North Vietnamese logistics flow.

During 1970 IAS also continued its policy of devoting a small but determined effort to advance the art in the application of imagery analysis techniques for solving intelligence problems. Nine experimental projects were completed during the year--four of them for OSR, one for OSI, and four self-initiated. Imagery Research Aids were prepared for use by photo-interpreters in IAS and elsewhere on: SA-5 System Ground Support Equipment; Identification of Soviet Ground Force Training Facilities; and Identification of Standard Soviet Support Structures (Part 2). Other experimental projects resulted in Imagery Analysis Reports or memoranda.

We currently have eight active experimental projects in IAS. One of these is a continuing project by which we attempt to promote conditions conducive to the prompt, accurate identification of significant unidentified installations. By nominating such installations for photographic coverage and directing the surveillance of these to the appropriate specialists, we have been successful in either having an identification made, such as the Kovytkino SA-5 Checkout Facility, or in determining that they are not significant. During 1970 we were able to reduce our list of unidentifieds from 34 to 23.

Current Intelligence Support. During CY 70 IAS participated with OSR in 17 preliminary assessments of satellite missions, as directed by the DDI. In addition, IAS unilaterally prepared 53 assessments of aircraft missions over Southeast Asia and North Korea. Those containing significant intelligence information were forwarded to the DDI. About 120 "miniboard" illustrations were prepared to visually highlight selected items from both types of missions. Important findings from each satellite mission were also presented orally by an IAS briefing team to an average of about 125 persons at Headquarters, including ONE Board and Staff members. Foreign liaison representatives received separate mission briefings on a more restrictive basis.

During the height of the Middle East crisis in August, and on into September, IAS participated with NPIC and DIA in the readout of U-2 and satellite imagery and participated in joint reporting on SAM deployment in the cease-fire zone. Of particular importance were the criteria developed by IAS for assessing operational deployment. These criteria were used by the intelligence community in reporting to Dr. Kissinger on a very timely basis during this critical period. IAS also supported OSR by developing the first available data base on ground forces in the Middle East cease-fire zone.

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Persistent efforts by IAS to contribute new and important discoveries as an outgrowth of our current intelligence efforts resulted in several major identifications during the year, including the Chinese missile impact area reported in December and the first identification of Frog missile equipment in Egypt early in November. There were other significant finds by IAS in subjects such as submarine construction, nuclear weapons storage, command/control facilities, Scaleboard field sites, radar deployment, etc.

Throughout the year, IAS also continued to carry out its ADDI-assigned responsibility of reviewing CIB items containing imagery-derived information. We reviewed approximately 175 such items during the year so as to assure that the imagery-derived information was accurate and up-to-date.

We also continued our role of reviewing the President's Quarterly Report (PQR) managed by OSR on the status of Soviet strategic attack forces. Here our responsibility is to verify the accuracy of imagery-derived information and to recommend and prepare appropriate illustrations.

Clandestine Activities Support. The amount of imagery analysis support provided to DDP was 4 percent of our total effort in 1970. In addition, IAS continued to staff the Multisensor Branch in Udorn, Thailand with 9 imagery analysts assigned to DDP for two-year PCS tours of duty.

As part of our support to the clandestine services, we continued to monitor prisoner-of-war camps in North Vietnam and to check on other locations reported to contain POW's. At the request of DDP, we had a scale model constructed of one of these reported POW camps.

We also provided photographic studies and other imagery analysis support for clandestine operations in various functional and geographic areas.

Basic Reporting. By June 1970 IAS had successfully completed its basic reporting responsibility under the National Tasking Plan for FY 70. Within that fiscal year a total of 309 non-military industrial installations were studied. The majority of these are located in China with the remainder in the USSR and North Korea. These studies resulted in the production of nearly 50 Basic Imagery Interpretation Reports (BIIR's). More than half of these represent consolidated reports where all of the known installations within a given industry (e.g. cement or iron and steel) are presented in a single document. Where applicable, the consolidated basic report format is used since it is more economical and useable than reporting on individual installations one at a time. The FY-71 basic reporting program for non-military industries is progressing on schedule.

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In October 1970 IAS produced a report containing engineering drawings with precise dimensions of the SA-3 Goa missile. Although this detailed study was done in response to a CIA production office requirement, it was published as an interim basic report for the benefit of the intelligence community, with the concurrence of the organization responsible (Army).

IAS is also participating in the basic reporting program on ground force installations by agreement with DIA and according to an EXSUBCOM/COMIREX plan. We are doing these studies primarily to meet OSR needs but have agreed to publish them as interim basic reports for community use. By the end of the year IAS produced a total of 39 such reports on North Korean ground force facilities and is in the process of doing similar reports on the Kun-ming Military Region of China.

Quantitative Summary. During CY 70, IAS expended 171,400 man-hours (including some overtime) on discrete, measurable imagery analysis projects. The table on page 7 shows distribution of effort, by percentage.

These figures for 1970 reflect a sharp increase in our efforts on the Middle East because of the crisis there. They also show a drop of 6 percent on the USSR, and increases of 5 percent on China and 6 percent on the Middle East as compared with our efforts during 1969.

There was also a decrease in the amount of work expended by IAS on Southeast Asia (Vietnam, Laos, and Cambodia) from a total of 14 percent in 1969 to 11 percent in 1970.

Overtime. IAS overtime during 1970 was held to about the same level as in 1969 (11,000 man-hours).

Progress in Specialized Services

In CY 70, an estimated 33 man-years were expended on providing specialized services to IAS, 13 by IAS supporting elements and about 20 by NPIC. The services provided within IAS are mainly information control, film storage, photoreproduction, equipment maintenance, requirement handling, and publications and graphic support.

IAS continued to rely on NPIC for supporting services which would be costly and inefficient to duplicate. These included photo and lithographic reproduction (10.3 man-years), complex photogrammetry (4.3 man-years), the maintenance of complicated electro-optical equipment (.1 man-year), computer services (2.1 man-years), collateral information and registry (2.3 man-years), and the preparation of special graphics/models (1.0 man-year). IAS also relied on NPIC for R&D related to imagery exploitation.

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IAS TIME EXPENDED ON IMAGERY ANALYSIS AND REPORTING 1/

January - December* 1970

(by percentages)

<u>Subject</u>	<u>Percent</u>	<u>Country</u>	<u>Percent</u>	<u>Requester</u>	<u>Percent</u>
Clandestine Activities		USSR	32	DDI	61
Support	4	China	30	DDS&T	18
Ground Forces	18	Sino-Soviet	1	DDP	4
Nuclear Energy Weapons		Middle East	7	COMIREX	5
CW, BW	7	Vietnam	6	DCI	1
Strategic Attack		Laos	4	Other <u>2/</u>	<u>11</u>
Missiles & Space	12	Cambodia	1		<u>100%</u>
Naval Forces	6	E. Europe	2		
Non-Military Industries	12	N. Korea	4		
Strategic Defense		Other <u>2/</u>	<u>13</u>		
Missiles & Electronics	12		<u>100%</u>		
Transportation and					
Logistics	11				
Air Forces	4				
Geographic Studies	4				
Other <u>2/</u>	<u>10</u>				
	<u>100%</u>				

1/ Personnel involved are imagery analysts and their Branch Chiefs as well as illustrators and intelligence assistants who support them directly on imagery analysis projects.

2/ Includes projects covering more than one subject, country, or requester where no breakdown can conveniently be made or the percentage expended is less than one. Also includes brief consultations, general file maintenance, and some experimentation in imagery analysis.

* Percentages are based on actual figures for January through October 1970 and projected for the remainder of the year.

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NPIC support in most cases has been very satisfactory, but we are concerned about computer services being able to meet our needs in the forthcoming period.

Progress in Equipment

X1 Three [] Comparators, connected on-line to NPIC's Univac 494 computer, were put into operational use early in the year. These instruments permit our imagery analysts to make accurate measurements in-house and have significantly improved our ability to respond to mensuration requests from CIA production offices on a timely basis.

Orders were placed for 16 Model-1540 light tables with the necessary optics to provide a capability for viewing [] roll film stereoscopically. In addition, we are in the process of replacing the manual film cranks on 25 of our Model-940 light tables with motorized film drives in preparation for handling large volumes of [] imagery.

X1 Two CRT display consoles with teletype printers have been procured to tie IAS into NPIC's forthcoming Integrated Information System (IIS). This equipment should enable IAS analysts to query NPIC's automated files of P.I. information on a rapid basis from either of two stations located within IAS work spaces.

Basic optical testing and alignment devices were purchased to improve our in-house ability to maintain and repair IAS' exploitation equipment. We also acquired a Microfiche Viewer-Printer in the hope of greatly reducing space requirements for storing mission indexes, listings, and related reports.

IAS experimented during the year with the use of IBM Magnetic-Card Selectric typewriters to determine whether an increased typing workload could be offset by acquiring these machines for use in IAS components. The results have been very promising, and we now have three of these units.

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